

Memorandum

DIR-8846

TO : Director, OTR

DATE: 20 July 1973

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FROM :



SUBJECT: Program Performance Measurement.
The Emerging Role of OTR in establishing
Requirements for Training.

I am submitting this memorandum intended as a discussion of

- (1) how to provide the data base necessary to tell OTR how well the programs are meeting their objectives on a current basis
- (2) an approach to determine to what extent the knowledge and/or skills imparted are applied on the job and
- (3) how OTR can establish requirements as contrasted with historically reacting to requirements.

A concept of a data base is presented which is intended to aggregate all of this and also attached is a basic form that can be used to respond to all of these goals.

In order to institute the best type of (program) performance measurement a number of aspects must be considered which not only influence the behavior and morale of those being measured but also affect the ability to satisfy the student -- our customer.

This paper is divided into four sections

- Section 1 - A Discussion of Program Performance Measurement
- Section 2 - OTR's Role in Establishing Requirements
- Section 3 - Some Observations
- Section 4 - Appendix A - C



Chairman, Functions Course

STAT

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

A Discussion of Program Performance Measurement

There are four steps involved in Program Performance Measurement that must be followed in a continually repetitive sequence to achieve the full benefits of such efforts.

The *first step* requires the careful specification and analysis of basic program objectives in each major area of activity. To accomplish this one must back away from the particular program being carried on, look at their objectives, and ask what are we really trying to accomplish. This definition of goals to be accomplished should start ideally at the top of the "organization" so that each level can be certain that their definition of goals falls within the scope of what has been defined by the next higher level. OTR certainly must provide the training necessary for agency personnel to accomplish or improve the accomplishment of the various agency missions but such definition is too broad and must be narrowed. At the other extreme for OTR to say we shall train "x" number of people or increase our student through-put by some quantity is too narrow and must be broadened. Specification of OTR objectives must fall between these two extremes. The more we learn about how to reach an objective, the more clearly we understand the objective resulting in a constant interaction between the decision process and our knowledge of our true objectives.

The *second step* involves the analysis of the output of a given program in terms of the objectives initially specified in the first step. For the OTR programs, our output addresses not how many or how many more students did we turn out but rather what improvements,

knowledge and/or new skills have we provided to the student. Will our educational efforts influence his behavior on the job and improve his job performance. This is often referred to as feedback a term taken from engineering servomechanism theory.

The *third step* calls for measurement of the total costs of the program -- not just for one year but over at least several years ahead. This would require OTR to identify the resources expended in each program, to accumulate resource costs by program and to extrapolate into the future periods from a historical cost data base.

The *fourth step* involves the analysis of alternatives if and only if programs are competing for limited resources. As an expository application let us examine how these steps or this cycle of events applies to the Information Science Program and the Information Science for Intelligence Functions Course within that program.

Course objectives serve two purposes:

1. They express the desired results of our customers in terms of accomplishments or goals to be achieved by the course.
2. They provide the basis or elements fundamental to course evaluation.

The most difficult aspect of any professional performance measurement scheme is not how to measure but what should be measured. What should be measured is dependent upon how one is organized and whether accountability and responsibility for activities which

satisfy customers needs are clearly defined and understood by those charged with such responsibility and accountability. Clearly organizational analysis is beyond the scope of this paper nevertheless the interrelationship between the design of an organization and an evaluation of an organization's performance must be clearly established.

These ideas have been used in our Information Science Program. For example I have *assumed* from our previous planning that the single overall objective required by step one of our Information Science Training Program at the Chief/Information Science Training Staff level is to educate Intelligence Professionals in the Information Science Disciplines. For the Current FY 73 Community Program segment, the numbers of students planned were as follows:

2 offerings	--	Survey	--	3 weeks	--	30' stdts = 60
2 offerings	--	Functions	--	4 weeks	--	25 stdts = 50
2 offerings	--	Inf. Sci.	--	1 week	--	25 stdts = 50
Total Students						160
Total Course Weeks						16

Assuming for step two that the proper output measure of the Information Science Program objective is to quote numbers of students exposed to Information Science then I could certify for the Functions Course that 27 + 30 or 57 students completed the Functions Course during FY 73. One can further document the specific inputs (and their costs required in step three) required to generate this output of 57 students i.e., lecture time of resident and guest faculty, course preparation time, computer time and charges (by problem and lecture if necessary) etc. From a Systems Analysis point of view,

the output (57 students) is tied to the related and required inputs (the resources and their costs) but is this a sufficient and proper measure? This measure of output as a single measure reflects the number of students put through the course but *does not reflect* the *full range of values or benefits* provided to our students and their respective organizations. In order to measure the value provided by the Functions Course and its contribution to the Information Science Program overall, it is necessary to go beyond the single measure of student output and resource input to determine whether we accomplished the course objectives and accordingly satisfied the students our customers. What is missing is the careful specification and analysis of the program objectives which produces a more meaningful output measure.

To elaborate further -- for the Functions Course alone -- four priority ranked specific student-oriented objectives were established (step one):

1. To familiarize you with the terminology and basic techniques of Information Science.
2. To develop your capability of identifying and defining problems in your professional intelligence field which are amenable to solution by information science techniques and to solve such problems at the elementary level.
3. To improve your communications capabilities in conferring with information science professionals.
4. To encourage you to pursue further the development of your own, and your organization's information science resources and capabilities.

How well we accomplish these objectives in the Functions Course with a fixed set of resource inputs is reflected in the course

evaluations completed by the students. A summary of the student evaluation responses from the last Functions Course demonstrates to what degree these objectives were fulfilled for that particular class (step two):

STUDENT EVALUATION-FINDINGS

<u>OBJECTIVE</u>	<u>OUTSTANDING/EXCELLENT</u>	<u>GOOD</u>	<u>FAIR</u>
1.	27 Students 90% of the class	3 10%	0 --
2.	15 50%	13 43%	2 7%
3.	21 70%	7 23%	2 7%
4.	23 77%	6 20%	1 3%

From these findings one can conclude that all objectives were accomplished. Since objectives 2 and 3 rank the lowest, efforts should be directed toward improving those areas for the next offering of the Functions Course. A follow-up questionnaire, four to six months after the course, would further confirm the degree of job application accomplished by the students of each course.

These objectives and the associated evaluation scheme used for the Functions Course may not be applicable for all courses conducted by OTR. Each course must have specified its own set of objectives based on the unique requirements of the customer needs to be satisfied by each course. How each course is conducted depends upon (1) the subject material to be presented, (2) the skill and knowledge of the assigned manpower presenting the course and (3) any procedural directives issued by top and/or middle management that apply

specifically to a particular program or course. These are the factors that influence not only the specification of objectives but also the degree to which the course objectives can be accomplished.

OTR's Role in Establishing Requirements

Although this process, its steps and their interrelationship have been explained using the Functions Course as a "real live intelligence application" the same concepts apply to any level within the organization. For example, the objectives that OTR must accomplish have in the past depended upon the requirements that have been levied by "Top" management. How OTR is organized has depended upon (1) the entire list of such requirements and (2) the aggregation of similar activities and/or courses (requirements) into manageable (school) segments. Such aggregations must provide for clearly defined areas of responsibility and authority which are the pre-requisites to accountability. To say the least I have been disappointed in the limited agency career development program that exists only for specific segments or very narrow specialties. The time has come for OTR to become more aggressive not only in career development training but also in much of the currently named "component" training. The training that OTR conducts for the Directorate of Operations and the Directorate of Intelligence I consider to be basically component training. In order to effect better utilization of training assets by OTR, OTR must effectively plan, organize and control the total training effort of

the agency. Planning sets the stage, organizing sets the resources and controlling sets the degree to which the organization will continue to survive. Planning determines a schedule of what is to be accomplished, Organizing determines the resources to be invested and how to accomplish the planned schedule and controlling determines how well the plan was accomplished. Since control requires a measured comparison of what was accomplished to what was planned to be accomplished, there can be no control without a succinct plan. The degree or amount of control required is dependent upon the professional capabilities of the personnel. In this regard OTR must decide what role it is to play in Agency Training.. This really means a restatement of the objectives to be accomplished, time-phased in a reasonable balance between assets, resources and time for accomplishment. I am reminded of the little boy who was asked by his father (a world renowned Production Control expert) what he wanted for his birthday next month. The boy replied "a baby brother." His dad responded with "that's impossible son." To which the boy quickly replied "you have taught me all of the principles and practices of effective production control, just put more men on the job".

Once the objectives are carefully specified and analyzed, then OTR can determine if the present organization is properly structured to accomplish this priority-ranked list of objectives. The only definitive principles of organization structure that apply are that (1) each organization falls somewhere between the extremes of being functionally organized and being product or service organized and

(2) like-activities should be grouped into manageable segments so that the specified objectives of such "grouped" activities can be responsibly accomplished.

If OTR is to exert more influence in career development, then OTR must write career development plans (programs) in conjunction with each responsible directorate. These career development programs then become the focal point of the OTR program planning and the subsequent course planning. The existence of career development plans does not require OTR to be organized along the same career structure. In fact, an OTR element such as the Information Science Program can cut across a number of career development plans by providing segments of instruction or courses that fit into various career progression patterns. Other such examples include the IWA introductory orientation, the mid-career and management courses and the senior seminar.

If OTR recognizes a need or void in training then a course or program should be developed and presented. Demand for such a program can be generated through effective advertising campaigns. We should look to the methods used in successful marketing research and advertising campaigns and apply such tactics to researching the need and promoting newly developed programs.

To determine how well each course is meeting its objectives, I offer as an example (appendix A) the form used in the Functions Course. As a follow-up questionnaire, I offer the form (appendix B) designed for the Functions Course. To determine the allocation of manpower/time assets, I offer the Faculty/Staff Activity Report (appendix C) as the

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basic time allocation data collection device. One can thus relate resource expenditures to the benefits provided to our customers -- the students and to those responsible for review of career development.

Some Observations

It is often charged that such measurement sets up biases in decision-making by concentrating on costs and ignoring intangibles and human factors which cannot be quantified. Or conversely by naively attempting to put numbers on such imponderable elements thereby misleading the decision-maker. Such thinking often forces personnel to play games. For example (in the evaluation of personnel who (1) present lectures or (2) participate as guest lecturers in other courses.) If I knew that my performance was to be evaluated on (1) the number of students who were lectured (2) the number of my lecture hours and (3) the ratio of students per lecture hours then I would make certain that my lecture hours per course were at a maximum and that I lectured only to large student-groups or classes. I could so maximize my performance measures that I would always be number one on this performance roster.

However sincere these critics may be -- they reflect a complete misunderstanding of the relevant issue. And sometimes they simply reflect the chagrin that particular pet projects may not show up well under such measurement schemes.

Program Performance measurement does require a systematic analysis (the means) of program proposals and decisions, concentrating on those particular decisions (the ends) which have inherent budgetary

consequences. Please note that systematic analysis does not have to be quantitative and is not co-extensive with quantitative analysis. The word "analyze" does not have the same meaning as the words "quantify" or "measure" although analysis often includes some form of measurement. Management by Objectives, the PPB process or whatever the current "in" title of a good management philosophy is, all of these concepts seek to subject to a systematic analysis both the tangible and intangible elements of a program decision. We live in a world that must make decisions often using limited or meagre information. This is more akin to the European Style of Management which opts for a decision as contrasted with the American Style which opts for "adequate" information *before* making the decision. In any event let us not become so Management by Objectives (MBO) oriented that we become managers who can't make decisions unless the plan calls for a decision.

APPENDIX - A

STUDENT EVALUATION
Approved For Release 2003/04/29 : CIA-RDP83-00058R000100120007-6
INFORMATION SCIENCE FOR INTELLIGENCE FUNCTIONS

CLASS: _____

INTRODUCTION. The Staff is concerned with the quality of its educational program. Your constructive comments are solicited and will be used as part of the basis for improving the ability of future presentations of the Functions Course to meet the information science training requirements of user organizations.

1. What is your overall impression of this course?

Outstanding____ Excellent____ Good____ Fair____ Poor____

2. Did we fulfill each of our course objectives for you? Indicate below:

- (a) To familiarize you with the terminology and basic techniques of Information Science.

Outstanding____ Excellent____ Good____ Fair____ Poor____

- (b) To develop your capability of identifying and defining problems in your professional intelligence field which are amenable to solution by information science techniques and to solve such problems at the elementary level.

Outstanding____ Excellent____ Good____ Fair____ Poor____

- (c) To improve your communications capabilities in conferring with information science professionals.

Outstanding____ Excellent____ Good____ Fair____ Poor____

- (d) To encourage you to pursue further the development of your own, and your organization's information science resources and capabilities.

Outstanding____ Excellent____ Good____ Fair____ Poor____

- (e) Do you believe the course content is compatible with the course objectives? Yes____ No____
Discuss this compatibility and describe any changes that you think would increase this compatibility.

4. Would you recommend this course to a co-worker?

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5. What is your job title and what are your major tasks?

6. What are your personal reason(s) for attending this course?

7. Reflecting on your learning from the course what percent of the course do you feel will contribute or be of use to you? Please identify by entering one (x) check for each line.

a. Immediate Use

25% 50% 75% 100%

b. Long-range Use

25% 50% 75% 100%

8. Please rate the course in light of your answers to Questions #4, #5, #6 and #7.

Outstanding____ Excellent____ Good____ Fair____ Poor____

9. As a follow-up to your end-of-course evaluation, any subsequent comments based on work experience at your home station would be most welcome and helpful in updating course relevance. Would you be interested in accomplishing a post-graduate questionnaire four months after completion of this Course?

Yes____ No____

APPENDIX - B

3. Reflect on your learning from the course this week. For each subject element listed please indicate your personal reaction to the appropriate space

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SUBJECT ELEMENT	I can see no application for this element in my work.	I am aware of a few applications for this element.	I am aware of many applications for this element in my work.	I'd like to incorporate the information & techniques from this element in my work.	I will certainly incorporate the information and techniques from this element in my work.
Elementary System Concepts					
Basic Programming					
Statistics					
Library Programs					
DELPHI					
Decision Trees					
Network Analysis					
Intelligence Problems - making use of these new techniques					

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3. Reflect on your learning from the course this week. For each subject element listed please indicate your personal reaction to the appropriate space.

SUBJECT ELEMENT	I can see no application for this element in my work.	I am aware of a few applications for this element.	I am aware of many applications for this element in my work.	I'd like to incorporate the information & techniques from this element in my work.	I will certainly incorporate the information and techniques from this element in my work.
Probability					
Linear Programming					
Basic Programming					
Single Correlation & Regression					
Library Programs					
DELPHI					
Probability Assessment					
Intelligence Problems - making use of these new techniques					

3. Reflect on your learning from the course this week. For each subject element listed please indicate your personal reaction to the appropriate space.

SUBJECT ELEMENT	I can see no application for this element in my work.	I am aware of a few applications for this element.	I am aware of many applications for this element in my work.	I'd like to incorporate the information & techniques from this element in my work.	I will certainly incorporate the information and techniques from this element in my work.
Information Storage And Retrieval					
Queueing					
Basic Programming					
Decision Theory					
Library Programs					
DELPHI					
ISS					
COINS					
Intelligence Problems - making use of these new techniques					

3. Reflect on your learning from the course this week. For each subject element listed please indicate your personal reaction to the appropriate space.

SUBJECT ELEMENT	I can see no application for this element in my work.	I am aware of a few applications for this element.	I am aware of many applications for this element in my work.	I'd like to incorporate the information & techniques from this element in my work.	I will certainly incorporate the information and techniques from this element in my work.
Retrieval Operations					
Search Strategy					
Bayesian Analysis					
Semantic Distortion					
File Construction					
MIS/PPB					
Human Factors					
Modeling & Simulation					
PERT					
Intelligence Problems - making use of these new techniques					

APPENDIX - C

FACULTY/STAFF ACTIVITY REPORT

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NAME: _____ WEEK OF: _____ TO _____

This form is simple to maintain if done each day. Indicate the amount of time spent performing any activity listed. (Indicate others if necessary.) An activity is considered significant if it requires more than 15 minutes of your time to do it. In the case of short duration jobs, i.e., filing, merely record the approximate total time spent in that activity during the day. turn in to branch chief by Friday noon each week.

ADMINISTRATION:

Management:

letter/report-research
letter/report-preparation
letter/report-coordinating

Briefings-preparing
Briefings-presenting
Briefings-attending

Meetings-preparation
Meetings-attending

Telephone

Clerical:

typing
filing
reproduction

meetings
telephone

training

CURRICULUM:

Instruction:

Research/study
Lesson preparation
Lesson presentation
Lesson attendance
Coordinating

[illegible]

CURRICULUM ACTIVITY CONTD.

Scheduling:

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preparation
coordinating
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Student Advising/Evaluating

Faculty Advisor Time
Seminar Evaluation
Paper/report evaluation
Briefing evaluation
Counseling
Record administration

Exercises:

Development
Preparation for
Participation

SECURITY:

Security indoctrination/training

PROFESSIONALISM:

Professional development
Proficiency maintenance

TRAVEL/LEAVE:

Travel/TDY
Leave

[illegible]

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